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Identifying the Determinant Dimensions of Shopper Convenience for Online Versus Instore Shopping in the Pre and Post CoVID-19 Eras

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Abstract

Background: *Shopper convenience is a key determinant of why shoppers choose and buy from a particular retail format – online versus instore. However, there are no systematic studies that assess which dimension of shopper convenience is salient for shoppers in online versus instore shopping instore. Further, to the best of our knowledge no study has investigated whether and how these determinant dimensions of shopper convenience have changed with the advent of COVID-19.*

Method: *In this study, 1324 responses of 172 shoppers using the Myers and Alpert (1968) approach were analyzed to identify the determinant dimensions of convenience for online and instore shopping in the pre-COVID-19 era and test their validity in the context of their actual purchase behavior. Later, the study was replicated with the same shoppers in the post-COVID-19 era.*

Results: *The results of the study show that of the four dimensions of convenience, while shopper assessment of "search" convenience was the most important attribute for both online and instore shopping, and "transaction" convenience the most different between the two retail outlets, the determinant dimensions in both retail outlets were "access" and "possession" convenience with instore shopping holding an advantage in possession" convenience and online shopping holding an advantage in "access" convenience. However, in a replication of the study in the post coronavirus era, online shopping outlets were found to have the advantage in both the determinant dimensions of convenience.*

Conclusion: This study perhaps for the first time show how shopper convenience perceptions have changed in pre and post COVID-19 eras for both instore and online shopping

Keywords: Shopper Convenience, Online Shopping, Retail Shopping.

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Introduction

Research has shown that convenience causes consumers to deepen relationship with service providers (Seiders, Voss, Godfrey & Grewal, 2007) and inconvenience causes them to exit relationships (Leavened, 1995; Pan & Zinkhan, 2006). This is particularly true for shopping outlets. Pan and Zinkhan (2006) showed that fast checkout and convenient location impacted consumers' choice of instore retail outlet as well as their re-patronage behavior. Seiders et al. (2007) showed that shopping convenience results in a variety of positive consumer outcomes such as increase in number of visits, higher share of wallet and greater shopping enjoyment.

Convenience was also found to be a key motivation for instore shoppers switching to online outlets (Beauchamp & Ponder, 2010; Reimers & Clulow, 2009; Moeller et al., 2009; Colwell et al., 2008; Degrease et al., 2000; Easterbrook, 1995; Lohse & Spiller, 1998; Morgan sky & Cude, 2000; Tanskanen et al., 2002). Instore shopping outlets are responding to this challenge by investing in making instore shopping experience more convenient for shoppers.

The importance of convenience in impacting shopper outcomes can be explained by the transaction cost theory. The basic principle underlying the transaction cost theory is that shoppers are rational and aim to conduct transactions in the most economic manner (Teo & Yu, 2005; Wu et al., 2014). Convenience in shopping results in savings in transaction costs for the shopper through savings in time and travel expenses. However, convenience, defined "as consumers' time and effort perceptions related to buying or using a product or service" has many dimensions. The most commonly accepted dimensions are access convenience, search convenience, transaction convenience and possession convenience (Seiders, Berry & Gresham, 2000; Beauchamp & Ponder, 2010).

Shopping convenience across various types of retail channels and shopper segments have been investigated before (Lim & Kim, 2011; Rigby, 2011; Close & Kukar-Kinney, 2010; Srivastava & Kaul,2014). Yet, there is a gap in literature. While overall shopper perception of convenience has been shown to impact their choice of outlets across studies (Beauchamp & Ponder, 2010; Colwell et al., 2008; Moeller et al., 2009; Morganosky & Cude, 2000; Reimers & Clulow, 2009), the relative impacts of these dimensions on consumer outcomes in online versus instore shopping have not been assessed. To address this gap in literature this study endeavors to answer the following research question: Which dimensions of convenience are determinants of shoppers' behavioral intention to purchase and actual purchase behaviors in online versus instore shopping? This investigation is relevant as online and retail shopping outlets often compete for business from the same consumers. Identifying the determinants will help shopping outlets to decide which dimensions of convenience to focus on for engendering positive shopper outcomes.

In line with this goal this study first identifies the determinant dimensions of convenience for instore and online shopping using a proposed adaptation of the Myers and Alpert (1968) approach in the shopping context. Myers and Alpert (1968) defined determinance of a product attribute as depending not only on the importance of an attribute to the consumers but also on how different (positively or negatively) the attribute is from competitive products in the perception of the users. We then validate the determinants so obtained against shopper outcomes such as their intention to purchase and actual purchase behavior. The findings of the study are discussed for their implications to practice. However, with the advent of Covid-19 we also requested subjects for data in the month of March 2020 to assess if the determinants have changed with onset of this momentous event. We found that although the determinants remained the same, the tenuous advantage in shopper convenience which online shopping had over instore shopping shifted decisively in favor of the former.

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Theory Development

According to Myers and Alpert (1968), determinant attributes are those that are most closely related to actual consumer preferences or purchase decisions. They gave example of automobile attributes such as power, fuel efficiency, comfort, appearance and safety. When consumers are asked which feature is most important to them, they often rank safety as the most important. However, when the same consumers are asked to assess how different are the safety features among automobiles available in the market then the response is not much different. Myers and Alpert (1968) argued that safety therefore cannot be a determinant attribute. According to them, the determinant attributes are not just dependent on how important they are but also by how different they are amongst the different product offerings in the market.

The manufacturers of automobiles therefore have two strategies in the context of safety features. To either improve the currently non-determinant safety features to beat competition in future by increasing the difference or improve other features further that are determinant at the present moment. However, whichever strategy is adopted, the manufacturer cannot completely ignore or be complacent about safety features. If they do nothing to enhance the safety features and if their competitors improve them the difference between the products on the safety aspect of automobiles will become significant. Then safety might become a determinant attribute as its importance is already very high in the minds of the consumers and now its difference has also become significant. Appling these concepts in the context of shopping convenience, we therefore expect

Hypothesis 1: Importance of a convenience dimension to shoppers as well as its difference among shopping outlets will impact behavioral intention of shoppers to purchase from a particular outlet

Further, we expect that for convenience dimensions which have high importance to the shoppers, the difference in convenience dimensions between instore and online shopping will have a greater impact on user outcomes than for convenience dimensions that have low importance for shoppers. Similarly, we expect that for convenience dimensions which have high difference between instore and online shopping, the importance of the convenience dimensions will have a greater impact on user outcomes than for convenience dimensions that have low difference between instore and online shopping.

Hypothesis 2: The impact of importance and difference among convenience dimensions on user outcomes will be multiplicative and not additive with synergistic impacts at higher levels of dimension importance and difference and antagonistic impacts at lower levels

Past research has viewed shopping convenience as a second order construct constituting various dimensions (Yale & Venkatesh, 1986; Brown, 1989, 1990; Seiders et al., 2000; Berry et al., 2002a; Seiders et al., 2005; Seiders et al., 2007). In this study we use the widely accepted definitions of the four dimensions of convenience by Seiders, Berry and Gresham (2000) and their operationalization by Beauchamp and Ponder (2010) to identify the determinant dimensions of convenience in online and instore shopping.

Access convenience is defined as “the speed and ease with which consumers can reach a retailer” (Sieders et al., 2000, p 81). It is the first step in the stopping process and an important dimension of retail convenience because without access there cannot be a purchase. Access convenience includes both time and effort elements. Instore shopping outlets try to improve access convenience by choosing a suitable location that save travel time and effort for most if not all of their customers. For online shoppers the location does not matter. All they need is access to computing facilities (mobile or a laptop or desktop computer, and Internet which are now readily and universally available except to some people in the third world countries.

Additionally, unlike in instore shopping, online shoppers can access the online shopping sites instantly from any geographical location. Therefore, we expect

Hypothesis 3: Access convenience will be salient for both online and instore shoppers

Hypothesis 4: There will be a significantly higher access convenience for shoppers shopping in online outlets compared with shoppers shopping in instore outlets

Search convenience is the "speed and ease with which consumers identify and select products they wish to buy" (Sieders et al., 2000, p 83). It is the second step in the shopping process. In online shopping, physical space is not a limitation and therefore more products can be searched by shoppers. Additionally, there is no physical movement required to search for goods. Further, movement across shopping sites is easy. If the required goods are not found at an online shopping site the shoppers can easily move to another. However, instore shopping has its own search advantages. Shoppers can physically touch, feel, smell or sometimes even taste products before purchase. They can even ask instore sales staff for help and guidance in searching the right products. Thus, although search convenience is important dimension of shopping, the difference between the two shopping outlets is not expected to be significant. Therefore

Hypothesis 5: Search convenience will be not be salient for both online and instore shoppers

Hypothesis 6: There will be no significant difference in search convenience for shoppers shopping in online outlets compared with shoppers shopping in instore outlets

Possession convenience is the "speed and ease with which consumers can obtain desired products. Instore shopping outlets manage merchandize availability through accurate demand forecasting and quick replenishments from suppliers such as by placing orders to suppliers as soon as an item is checked-out by customers. Shoppers can expect to pick up most items from shelves and get immediate possession. However, in online shopping the goods are not available for immediate possession but may take significant shipping time for delivery to the shopper. We therefore expect,

Hypothesis 7: Possession convenience will be salient for both online and instore shoppers

Hypothesis 8: There will be a significantly higher possession convenience for shoppers shopping in instore outlets compared with shoppers shopping in online outlets

Transaction convenience is the speed and ease with which consumers can effect or amend transactions." (Sieders et al., 2000, p. 86). Having made the purchase shoppers are in a hurry to check-out. They do not want to stand in queues to conclude the transaction. Therefore, online shopping will have an advantage over instore shopping on the transaction convenience dimension. However, transaction convenience may not be as salient a dimension of convenience as access, search and possession conveniences as the time and effort required to conclude a transaction may not be very high when compared to the total shopping time and effort. In instore store, the major time and effort is for accessing the retail outlets, in instore shopping the longest time is waiting for the items to arrive. Thus, we expect

Hypothesis 9: Transaction convenience will not be salient for both online and instore shoppers

Hypothesis 10: There will be a significantly higher transaction convenience for shoppers shopping in online outlets compared with shoppers shopping in instore outlets

Based on the Myers and Alpert (1968) approach we therefore expect Access convenience and Possession convenience to be determinant aspects of convenience for both online and

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instore shopping. While Access convenience would have a higher positive/ negative impact on choice of online/ instore retail outlets respectively compared to search convenience and transaction convenience, possession convenience would have a higher positive/ negative impact on choice of instore/ online retail outlets respectively compared to search convenience and transaction convenience.

Hypothesis 11: Access and Possession will be determinant dimensions of convenience compared to search and transaction convenience.

Method

Study Setting and Design

A quasi-experimental method was adopted in the study. Experimental research is a useful method for examining cause and effect. It offers a methodical way of comparing differences in the effect of treatments (such as perceived convenience provided by the shopping site to the consumers) on the dependent variable (such as behavioral intention to buy from the shopping outlet). Actual shoppers participated in the study. Each randomly chosen subject in the study answered a questionnaire based survey that captures data on demographics and relevant independent variables, dependent variables and control variables. The shoppers provided their responses on all shopping outlets, instore and online) they used for purchasing goods in the next two months after they were recruited for the study in September 2019. All subjects provided response for at least 1 instore shopping and 1 online shopping site. Subjects freely choosing shopping outlets for their purchases provided the variation necessary to test the hypotheses. Catalogue shopping was not included. In all 172 subjects provided a total of 1324 responses to the survey (phase 1). A replication of the survey with the same 172 subjects in March 2020 (Phase 2) provided a total of another 942 responses in the next two months.

Subjects

The subjects were recruited from a large public university. The college of business of this university encourages research exposure by awarding students extra credit for research exposure. An email was sent randomly to 200 students of the college of business from among its 2300 students inviting them to participate in the study. We received a total of 181 responses. Based on this response we invited all 181 students to participate in the study. Among those invited to participate 172 actually participated in the study. These 172 subjects provided a total of 1324 responses to purchases made in the next two months in phase 1 and 942 response in phase 2. The subjects were given extra course credit for their efforts.

Data Collected and Measures Used

In additions to demographics, the respondents in line with the Alpert and Myer (1968) approach were also asked how important each dimension of convenience is in their purchase decision. They answered on a 7 point scale with anchors of 7 (Extremely important) and 1 (Not at all important). Before accessing the retail outlet, subjects provided their response to a question on whether the purchase could have been made at the other type of outlet. They responded by answering, Yes/ No/ Do not know. If the answer was “Yes” then the respondents provided information on how much difference they perceive between this and all other retail outlets in general where they could have made a purchase on each of the convenience dimensions. If the answer was “No” then the respondents provided information on how much difference they perceive between this and the other of retail outlets of the same type on each of the convenience dimensions. The respondents answered on a 7 point scale with anchors of 7 (Very Different) and 1 (Very Similar).

The response of respondents who answered “Do not know” was not included in the analysis of data. Thus, out of the 1324 responses 111 were not included in the data analysis. In addition, the respondents recorded whether a purchase was made or not made at the outlet. The respondents were also asked if they had any disability that might affect their physical movement. This information was collected as it might influence their preference of shopping outlets. None of the respondents reported any such disability.

Data pertaining to each of the four dimensions of convenience and the overall convenience with a shopping outlet was collected from subjects for each shopping event. Tested measures were used to measuring the dimensions of convenience. We used the Beauchamp and Ponder (2010) measures for the four dimensions of convenience, Access (AC), Search (SC0, Possession (PC) and Transaction convenience (TC). We used the Jiang, Yang, and Jun (2013) scale for measuring Behavioral Intention (BI) of shoppers. For a complete list of items used in these scales see Appendix A. All measures used a 7-point Likert scale with anchors of 7 (strongly agree) and 1 (strongly disagree). Responses were coded such that high levels of the constructs are represented by high values. Some items were reverse coded. The overall value for each construct was created by averaging the user responses.

Method of Analyses

To establish reliability and validity of the measures used in the study factor analysis was performed on the combined data set obtained and internal reliabilities and correlation matrix of the measures were examined. We then regressed overall convenience rating by subjects with individual ratings on each dimension for each of the two types of outlets. The regression coefficients of each dimension so obtained represented the importance rating of each dimension. The regression coefficients were normalized on a 7 point scale by dividing the regression coefficients of each dimension with the highest coefficient and multiplying by seven. The difference rating between the two outlets is determined by the absolute value of difference in subject response on each dimension for each type of outlet. The interaction term for each type of outlet is determined by multiplying the importance rating on each dimension with the difference rating. Determinants were validated against both psychological and behavioral outcomes of shoppers. Attitude was measured by BI. Behavioral outcome was measured by shopper choice. Extraneous variables such as age and gender were controlled for in the analysis of subject responses.

The widely recommended Moderated Hierarchical Multiple Regression (MHMR) was used for testing the direct and interaction effects of independent variables (Cortina, 1993; Cohen, 1978; Dunlap and Kemery, 1987; Stone and Hollenbeck, 1989). MHMR reveals how well each independent variable predicts the dependent variable, after extracting variance due to other independent and control variables in the regression equation and interaction effects after extracting variance due to independent and control variables. In option 1 the control variables were introduced in the first step, importance ratings in the second step. In option 2 the first two steps were repeated with difference rating added in the third step. In option 3 the first 3 steps of option 2 are repeated with the interaction term added in each step. The results obtained from MHMR analyses were used to test for hypotheses 1, 2, 3, 5, 7, 9 and11. The Variance Inflation Factor (VIF) option was included in regression analyses to explore the extent of multicollinearity in the results. The VIF values of less than 1.5 indicating a lack of multicollinearity in results (Hair et al., 2006).

Logistic regression was used to model the convenience dimensions influencing shopper choice of retail outlets. Logistic regression is a preferred statistical technique for multivariate modeling of categorical dependent variables (DeMaris et al., 2012). Research has shown that using linear regression with expected value E(Y) as dependent variable is problematic because of its underlying assumptions (for more details see Aldrich & Nelson, 1984; Hanushek & Jackson, 1977; Maddala, 1983).

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Results and Analyses

Factor analysis procedure was done using IBM SPSS Statistics Version 19. Dimension reduction was performed on the data pertaining to all the 5 measurement scales. The results of Varimax rotation show that the 5 factors extracted represented each of the 5 scales (see Appendix B). All items of a scale loaded on the respective factors. Convergent and discriminant validity between scales are evident by the high loadings within factors, and no significant (> .40) cross loadings among factors (see Appendix B). We then measured the internal reliabilities of the scales used in the study. As can be seen from the Table 2, the alpha reliabilities are all greater than .70.

Table 1 - Internal Reliability of Scales

Name of the scale	Cronbach's alpha	N of Items
AC (Access Convenience)	.872	5
SC (Search Convenience)	.901	5
TC (Transaction Convenience)	.893	3
PC (Possession Convenience)	.845	4
BI (Behavioral Intention)	.916	6

The results presented in Table 2 show that shoppers derive significantly higher access and transaction convenience for online shopping compared with instore shopping, and significantly higher possession convenience for instore shopping compared to online shopping. However, no significant difference was found between online and instore shopping for search convenience. Thus hypothesis 4, 6, 8 and 10 were supported.

Table 2 - Difference in convenience dimension ratings between instore and online shopping

	Online	Instore	Difference
AC (Access Convenience)	6.6	5.3	2.0**
SC (Search Convenience)	5.7	6.2	-0.5
TC (Transaction Convenience)	6.0	3.9	2.1**
PC (Possession Convenience)	4.6	6.5	-1.9*
O (Overall Convenience)	6.1	5.2	0.9*

*** p < .05 , **p < 0.01, ***p<0.001**

Table 3 - Importance of convenience dimension ratings for instore and online shopping

	Online	Instore
AC (Access Convenience)	6.2	6.5
SC (Search Convenience)	6.7	6.6
TC (Transaction Convenience)	4.8	5.0
PC (Possession Convenience)	5.9	5.7

*** p < .05 , **p < 0.01, ***p<0.001**

From Table 3 we can see the importance of SC > AC > PC > TC for Instore as well as Online Shopping. When multiplied by the difference in shopping ratings for these dimensions (Table 2) the resulting product was AC > PC > SC >TC. Thus, in line with Alpert and Myer (1968) we can expect AC and PC to be salient dimensions of convenience compared with SC and TC. This expectation was supported by the results of MHMR analysis (see Model 3 of Tables 4 and 5). The interaction terms for importance and difference of AC and PC were found to

have a higher regression coefficient than the interaction terms for importance and difference of SC and TC for both instore and online shopping.

While in Model 1 and 2 of Tables 4 and 5 the importance of convenience dimensions and difference between them was found to have a significant impact on BI for both instore and online shopping, when the interaction term was introduced in Model 3 (see Tables 4 and 5) both importance and difference had a non-significant impact on BI for both instore and online shopping. Thus, aligned with Myers and Alpert (1968) the determinant attributes can be identified if one considers the product of importance and difference among attributes, thereby supporting Hypothesis 1 and 2.

Thus, using the Alpert and Myer (1968) approach was instrumental in identifying access and possession convenience to be salient for both instore and online shopping thus supporting Hypothesis 3 and 7 and 11. Although, search convenience was found to have a significant impact on BI for instore shopping and transaction convenience was found to have a significant impact for online shopping, their impacts on BI as determined by the regression coefficients were much less than the impacts of access convenience and possession convenience for both instore and online shopping. Additionally, the impacts of search and transaction convenience on BI was non-significant for online and instore shopping respectively. Thus hypothesis 5 and 9 were also supported.

Table 4 - MHMR of BI for Instore shopping

Step	Variables added in each step	Change in R- Square ΔR^2 (Regression Coefficients) of Model 1	Change in R- Square (Regression Coefficients) of Model 2	Change in R-Square (Regression Coefficients) of Model 3
1	Control: Gender, Age	0.11* (0.06*, 0.07*)	0.12* (0.07*, 0.08*)	0.11* (0.06*, 0.06*)
2	Importance: AC, SC, TC, PC	0.17** (0.05**, 0.07**, 0.08**, 0.07**)	0.12* (0.03*, 0.04*, 0.03*, 0.03*)	0.08 (0.01, 0.02, 0.00, 0.01)
3	Difference: AC, SC, TC, PC		0.13** (0.05*, 0.06*, 0.05**, 0.03*)	0.06 (0.01, 0.00, 0.00, 0.02)
4	Importance * Difference: AC, SC, TC, PC			0.53** (0.91**, 0.07*, 0.05, 0.97**)

***p < .05 ** P < .01 ***p<.001**

Table 5 - MHMR for BI of online shopping

Step	Variables added in each step	Change in R- Square ΔR^2 (Regression Coefficients) of Model 1	Change in R- Square (Regression Coefficients) of Model 2	Change in R-Square (Regression Coefficients) of Model 3
1	Control: Gender, Age	0.10* (0.06*, 0.05*)	0.13* (0.08*, 0.08*)	0.11* (0.05*, 0.07*)
2	Importance: AC, SC, TC, PC	0.18** (0.09**, 0.04**, 0.07**, 0.08**)	0.15* (0.04*, 0.04*, 0.03*, 0.05*)	0.08 (0.00, 0.01, 0.01, 0.00)

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3	Difference: AC, SC, TC, PC		0.14** (0.04*, 0.03**, 0.06**, 0.04**)	0.06 (0.00, 0.01, 0.00, 0.02)
4	Importance * Difference: AC, SC, TC, PC			0.57** (0.95**, 0.04, 0.11, 0.98**)

***p < .05 ** P < .01 ***p<.001**

The results of the logistical regression for shopper choice of Online and Instore shopping are shown in Table 6. As can be seen from the results, age and gender did not impact user choice significantly. Further, search and transaction convenience also did not impact the shopper choice of online as well as instore shopping. Also, access and transaction convenience did have a significant influence on shopper choice of retail outlets. Thus, the results of logistical regression in Table 6 further supported Hypothesis 3, 5, 7, 9 and 11 for shopper choice of retail outlets.

Table 6 - Logistic regression of the log odds of Online and Instore Purchases

Variable	Online Shopping	Instore Shopping
Intercept	0.013	0.024
Access Convenience (AC)	**0.325 *****	**0.565****
Search Convenience (SC)	-0.011	-0.018
Transaction Convenience (TC)	0.019	0.022
Possession Convenience (PC))	**0.643*****	**0.357*****
Age	-0.002	0.008
Gender	-0.005	--0.019

*** p < .05 ** p < .01 ***p<.001**

Discussion

The findings of the study in general support the hypotheses proposed in the study. The Myers and Alpert (1968) method was useful in identifying the determinants dimensions of convenience accurately. Access convenience and Possession convenience were found to be salient in impacting BI of both instore and online shopping. The study also helped identify the non-salient dimensions of convenience. Search and transaction convenience had a non-significant or marginal impact on BI of shoppers of both instore and online shopping outlets. The study also confirms the findings of earlier studies that shopping convenience is salient in influencing shopper outcomes. The four convenience dimensions together could explain 63 % of the variance in BI for instore shopping and 67% of the variance for online shopping. The results of logistical regression for shopper choice further supported the hypotheses proposed in the study.

Table 7 - Logistic regression of the log odds of Online and Instore Shopping Choice

	Online	Instore	Difference
Choice when purchase objectives can be met by the other type of outlet	379	224	155**
Choice when purchase objectives cannot be possibly met by the other type of outlet	407	314	93**
Overall	786	538	248**

**** p < .01**

From a supplementary analyses of data (Tables 7) we can see that shoppers had a higher overall preference for online shopping irrespective of whether the purchase objectives could have been met by instore outlets or not. The higher overall convenience rating for online

shopping (Table 2) may have contributed to this preference. A sensitivity analysis of the logistical regression models (Table 6) presented in Tables 8 show that a change in 1 SD above mean), for possession convenience had the highest impact in shopper choice of online shopping. Further, a change in 1SD above mean of access convenience had the highest impact ion shopper choice of instore shopping outlets (Table 9).

Table 8 - Sensitivity Analysis of shopper choice for Online shopping

Variable	Mean	SD	Mean + 1 SD	% change in purchase
Access Convenience (AC)	6.621	0.645	7.266	29.23
Search Convenience (SC)	5.754	0.629	6.383	2.23
Transaction Convenience (TC)	6.033	0.437	6.470	3.23
Possession Convenience (PC))	4.677	0.340	5.017	50.77

Table 9 - Sensitivity Analysis of shopper choice for Instore shopping

Variable	Mean	SD	Mean + 1 SD	% change in purchase
Access Convenience (AC)	5.352	0.591	5.943	45.23
Search Convenience (SC)	6.216	0.623	6.839	6.23
Transaction Convenience (TC)	3.872	0.432	4.304	4.23
Possession Convenience (PC))	5.500	0.344	5.844	19.77

These findings further confirm that both access and possession convenience are determinant dimensions of convenience affecting consumer choice of retail outlets. Further, the findings have implications for retailers in both formats. While both access convenience and possession are salient for both online and instore shopping, enhancing access convenience has the maximum impact on shopper choice in favor of instore outlets and enhancing possession convenience has the maximum impact for shopper choice in favor of online outlets.

Phase II Data Analysis

We analyzed data from the subjects in the replication of the previous study and found that the retail landscape has changed significantly. The possession convenience rating of shoppers for online versus instore shopping had flipped (Table 10). While PC and RC were higher for instore shopping and AC and TC higher for online shopping in the pre-coronavirus era, in the post-coronavirus era all 4 conveniences were higher for online shopping. Also, the importance rating of PC>AC>TC>SC was found for both Instore as well as Online Shopping in post coronavirus era Table 11), while in the pre-coronavirus era importance rating (Table 3) for both instore and online shopping was SC>AC>PC>TC. This could be because of social distancing and stay-at-home orders by the local self-government. As a result, people preferred to thereby at more accessible locations and where possession of goods could be made with minimum travelling and social contact. For this reason, both AC and PC were assessed as higher in importance between online shopping and instore shopping.

However, when importance was multiplied by the difference in shopping ratings for these dimensions the resulting product was AC> PC>SC>TC for both instore as well as online shopping in the post-coronavirus era as in the pre-coronavirus era. Thus, in line with Alpert and Myer (1968) we can expect AC and PC to be remain as salient dimensions of convenience compared with SC and TC. This expectation was supported by the results of MHMR analysis (see Model 3 of Tables 12 and 13). The interaction terms for importance and difference of AC and PC were found to have a higher regression coefficient than the interaction terms for importance and difference of SC and TC for both instore and online shopping.

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However, unlike in the pre-coronavirus era online shopping was found to be higher than instore shopping in both AC and PC, thus giving a distinct advantage to online shopping over instore shopping on convenience dimensions. This together with the finding of determinant convenience dimensions having a higher impact on BI of shoppers implies that the retailing landscape will remain tilted heavily in favor of online shopping at least until the coronavirus era ends. In the pre-coronavirus era shopping convenience had an overall impact on BI of 53% for instore shopping and 57% for online shopping while in the post coronavirus era shopping convenience had an overall impact on BI of 72% for instore shopping and 77% for online shopping. This finding is further supported by the finding that shopper preference for online shopping increased sharply in the post-coronavirus era (see Table 15). 75% of the times subjects preferred to shop online compared with 25% for instore shopping in the post-coronavirus period, while in the pre-coronavirus era the corresponding figures were 59% and 41% respectively (see Table 7). A difference in proportion test showed that the difference was statistically significant at p<0.001).

Table 10 - Difference in convenience dimension ratings between instore and online shopping (Phase 2)

	Online	Instore	Difference
AC (Access Convenience)	7.4	4.9	2.5**
SC (Search Convenience)	6.8	5.1	1.7**
TC (Transaction Convenience)	6.8	5.3	1.5**
PC (Possession Convenience)	7.9	6.3	1.6**
O (Overall Convenience)	7.2	5.4	2.2**

*** p < .05 , **p < 0.01, ***p<0.001**

Table 11 - Importance of convenience dimension ratings for instore and online shopping (Phase 2)

	Online	Instore
AC (Access Convenience)	6.2	6.5
SC (Search Convenience)	5.0	5.1
TC (Transaction Convenience)	5.7	5.3
PC (Possession Convenience)	7.4	7.6

*** p < .05 , **p < 0.01, ***p<0.001**

Table 12 - MHMR of BI for Instore shopping (Phase 2)

Step	Variables added in each step	Change in R- Square ΔR^2 (Regression Coefficients) of Model 1	Change in R- Square (Regression Coefficients) of Model 2	Change in R- Square (Regression Coefficients) of Model 3
1	Control: Gender, Age	0.09* (0.04*, 0.05*)	0.10* (0.04*, 0.07*)	0.05* (0.04*, 0.02)
2	Importance: AC, SC, TC, PC	0.14** (0.03**, 0.07**, 0.05**, 0.06**)	0.10* (0.02, 0.04*, 0.03*, 0.03*)	0.04 (0.01, 0.02, 0.00, 0.01)
3	Difference: AC, SC, TC, PC		0.13** (0.05*, 0.06*, 0.05**, 0.03*)	0.05 (0.01, 0.00, 0.00, 0.02)
4	Importance * Difference: AC, SC, TC, PC			0.72** * (0.91**, 0.12*, 0.16*, 0.97**)

***p < .05 ** P < .01 ***p<.001**

Table 13 - MHMR for BI of online shopping (Phase 2)				
Step	**Variables added in each step**	**Change in R- Square ΔR^2 (Regression Coefficients) of Model 1**	**Change in R- Square (Regression Coefficients) of Model 2**	**Change in R-Square (Regression Coefficients) of Model 3**
1	Control: Gender, Age	0.10* (0.06*, 0.05*)	0.13* (0.08*, 0.08*)	0.01 (0.00, 0.1)
2	Importance: AC, SC, TC, PC	0.12** (0.07*, 0.04*, 0.05*, 0.06*)	0.12* (0.03*, 0.04*, 0.03*, 0.03*)	0.08 (0.00, 0.01, 0.01, 0.00)
3	Difference: AC, SC, TC, PC		0.13** (0.04*, 0.03**, 0.07**, 0.03**)	0.06 (0.00, 0.01, 0.00, 0.01)
4	Importance * Difference: AC, SC, TC, PC			0.77** (0.95**, 0.04, 0.11*, 0.98**)

***p < .05 ** P < .01 ***p<.001**

Table 14 - Logistic regression of the log odds of Online and Instore Purchases (Phase 2)		
Variable	**Online Shopping**	**Instore Shopping**
Intercept	0.013	0.024
Access Convenience (AC)	**0.379 *****	**0.671****
Search Convenience (SC)	-0.011	-0.018
Transaction Convenience (TC)	0.019	0.022
Possession Convenience (PC))	**0.711*****	**0.422*****
Age	-0.002	0.008
Gender	-0.005	--0.019

*** p < .05 ** p < .01 ***p<.001**

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Table 15 - Shopper Preference - Online vs Instore Shopping (Phase 2)			
	Online	**Instore**	**Difference**
Choice when purchase objectives can be met by the other type of outlet	322	105	217***
Choice when purchase objectives cannot be possibly met by the other type of outlet	384	131	253***
Overall	706	236	470***

*****p<.001**

Contribution

The goal of the study was to identify the determinant dimensions of shopping convenience for instore versus online shopping. The findings of the study validated, perhaps for the first time, that access and possession convenience are salient dimensions that impact shopper outcomes. Further, the findings in both phases of the study also showed the relevance and accuracy of Myers and Alpert (1968) approach in identifying the determinant dimensions of convenience, and that determinance was not just the outcome of the importance of these dimensions to the shoppers but also their difference between the two types of outlets.

These findings add to our body of knowledge in retail business by suggesting that from the convenience perspective people in the pre-coronavirus era chose online outlets because of access convenience and choose instore outlets because of possession convenience. The impacts of search and transaction convenience were found to be marginal at best for both instore and online outlets. The recommendation based on pre-coronavirus era findings was that online and instore outlets have three strategies for attracting shoppers. online and instore shopping outlets can enhance access convenience, enhance possession convenience or enhance both. But the findings of the study show that the biggest return on investment for online shopping can be expected by enhancing possession convenience and for instore shopping from enhancing access convenience.

This strategy also had face validity. Online shoppers may not have much scope to further improve access convenience and instore shoppers may not have much scope to further improve possession convenience. However, online shopping has greater scope to improve possession convenience and instore shopping has ample scope for improving access convenience. This is also borne out from observations in practice. While online retailers such as Amazon.com is offering a one-day express delivery of items ordered to its customers (possession convenience), Tesco plc, a instore retail chain, is allowing items to be preordered using mobile (access convenience) to be delivered to its customers when they reach home. Yet, the findings of the study indicate that from the shopper convenience perspective online shopping is in an advantageous position (see Tables 2 and 7) and in the battle of formats online shopping will be more likely to steal a march over instore shopping format. Or perhaps a hybrid online-instore model is the future of retail shopping.

However, in the post coronavirus era the shopper perception changed completely. On the convenience dimensions online shopping has effectively stolen a march over instore shopping. Many more people thus preferred to shop online than instore. The situation is likely to persist as social distancing and safety concerns is likely to remain with us for a long time thereby driving people to shop from the convenience of their homes whenever they can. Once this becomes a habit online shopping will increasing become the preferred mode of shopping well into the future. Unless instore retail outlets do something disruptive the future it seems belong to B2C ecommerce.

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Appendix A

Item	Description (The first description is for items of instore shopping and the second description is for items of online shopping unless otherwise specified)
AC1	1. The store was easy to get to.
	1. The website was easy to find.
AC2	2. The store had convenient hours.
	2. I could order any time I wanted.
AC3	3. Parking was reasonably available.
	3. I could order from remote locations
AC4	4. It was easy to move through the store
	4. I was able to find the website quickly.
AC5	5. The store wasn't too crowded
	5. The web pages loaded quickly
AC6	6. I was able to go to the store's location quickly (instore only)
SC1	1. The store was well--organized.
	1. It was easy to navigate the website.
SC2	2. I could easily find what I was looking for.
	2. I could find what I wanted without having to look elsewhere.
SC3	3. The store was neat.
	3. The website provided useful information
SC5	4. The store was clean.
	4. It was easy to get the information I needed to make my purchase decision.
SC5	5. I could find what I wanted without having to look elsewhere
	5. The website was well--organized. 4
SC6	6. It was easy to get the information I needed to make my purchase decision.(Online only)
TC1	1. The store has a fast checkout.
	1. The checkout process was fast.
TC2	2. My purchase was completed easily.
	2. My purchase was completed easily.
TC3	3. I was able to complete my purchase quickly.
	3. It did'nt take a long time to complete the purchase process
TC4	4. I did'nt have to wait to pay (instore shopping only)
TC5	5. It did'nt take a long time to complete the purchase process
PC1	1. I got exactly what I wanted.
	1. I got exactly what I wanted.
PC2	2. It took a minimal amount of effort on my part to get what I wanted.
	2. It took a minimal amount of effort on my part to get what I wanted

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PC3	3. What I wanted was in stock.
	3. My order was delivered in a timely fashion
PC4	4. I got what I wanted when I wanted it
	4. I was properly notified of my order status
BI1	.1. I will continue to shop at this retailer
BI2	.2. I encourage others to shop at this retailer
BI3	.3. I will use this retailer more for purchases

Appendix B

Items	Factors				
	1	2	3	4	5
AC1	**0.930**	-0.003	-0.026	-0.048	0.023
AC2	**0.914**	0.028	0.001	0.013	-0.006
AC3	**0.913**	0.002	0.104	-0.059	-0.004
AC4	**0.806**	-0.042	0.089	0.022	-0.141
AC5	**0.844**	0.007	0.044	0.010	0.082
AC6	**0.821**	0.113	0.008	0.045	-0.001
SC1	0.052	**0.862**	0.007	0.012	0.107
SC2	0.045	**0.872**	0.089	0.004	0.231
SC3	0.015	**0.834**	0.089	0.148	0.081
SC4	0.031	**0.908**	0.135	0.138	0.085
SC5	0.078	**0.841**	0.133	0.002	0.165
SC6	0.004	**0.875**	0.124	0.089	0.057
TC1	-0.057	0.199	**0.796**	0.034	0.069
TC2	0.073	0.217	**0.855**	-0.021	0.062
TC3	0.074	0.007	**0.840**	0.072	0.11
TC4	0.064	0.006	**0.822**	-0.058	0.029
TC5	-0.057	0.199	**0.796**	0.034	0.002
PC1	0.217	-0.057	0.199	**0.803**	0.066
PC2	0.229	0.073	0.217	**0.825**	0.096
PC3	0.067	0.074	0.007	**0.830**	0.055
PC4	0.025	0.064	0.006	**0.833**	0.040
BI1	0.229	0.073	0.017	0.070	**0.862**
BI2	0.067	0.074	0.007	0.033	**0.841**
BI3	0.025	0.064	0.006	0.006	**0.801**

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